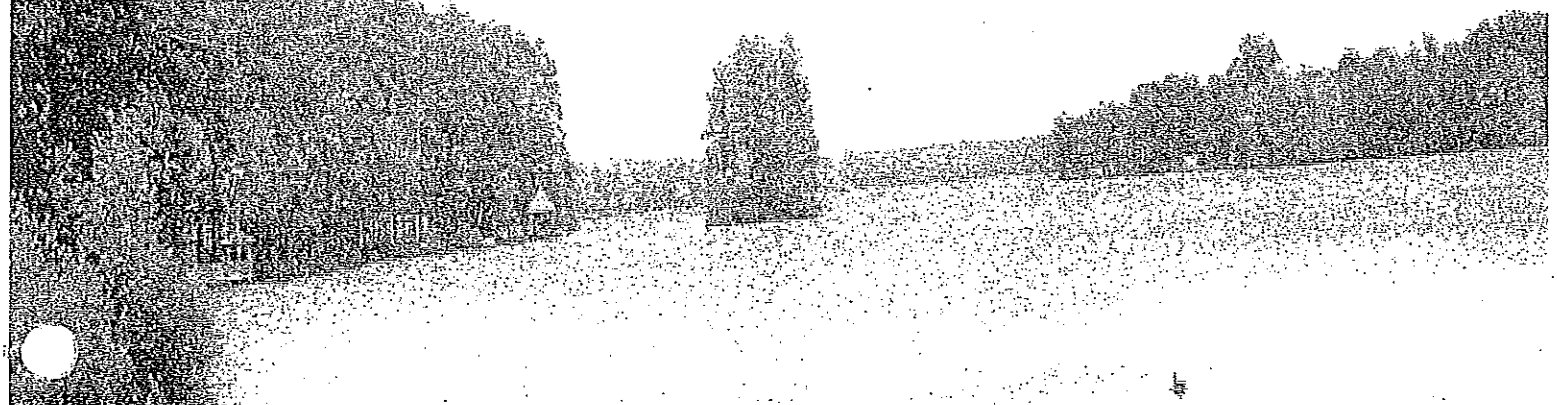
Total Maximum Daily Load Development

for the

Appomattox River Basin



Prepared for:
Virginia Department of Environmental Quality
March 1, 2004

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3. SOURCE ASSESSMENT

The TMDL development described in this report includes examination of all potential sources of fecal coliform in the Appomattox River watershed. The source assessment was used as the basis of model development and ultimate analysis of TMDL allocation options. In evaluation of the sources, loads were characterized by the best available information, landowner input, literature values, and local management agencies. This section documents the available information and interpretation for the analysis. The source assessment chapter is organized into point and nonpoint sections. The representation of the following sources in the model is discussed in Section 4.

3.1 Assessment of Point Sources

Twenty-nine point sources are permitted to discharge in the Appomattox River watershed through the Virginia Pollutant Discharge Elimination System (VPDES). Figure 3.1 shows their discharge locations. Permitted point discharges that may contain pathogens associated with fecal matter are required to maintain a fecal coliform concentration below 200 cfu/100 ml. Currently, these permitted dischargers are expected not to exceed the 126 cfu/100ml *E. coli* standard. One method for achieving this goal is chlorination. Chlorine is added to the discharge stream at levels intended to kill off any pathogens. The monitoring method for ensuring the goal is to measure the concentration of total residual chlorine (TRC) in the effluent. If the concentration is high enough, pathogen concentrations, including fecal coliform concentrations, are considered reduced to acceptable levels. Typically, if minimum TRC levels are met, bacteria concentrations are reduced to levels well below the standard. Table 3.1 summarizes data from these point discharges.

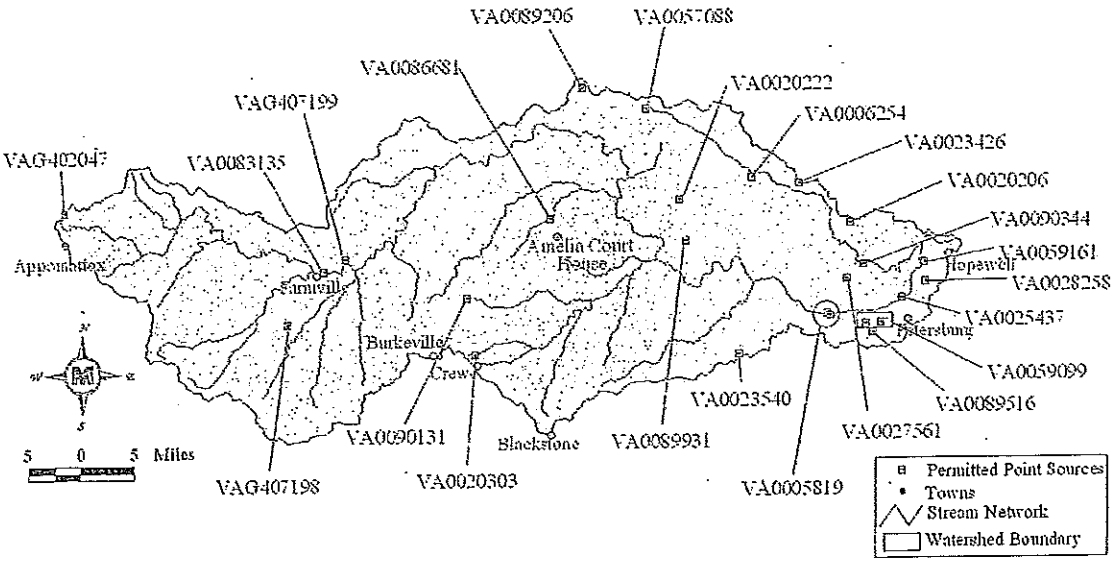

Figure 3.1 Location of VPDES permitted point sources in the Appomattox River watershed.

Table 3.1 Summary of VPDES permitted point discharges in the Appomattox River watershed.

Facility	VPDES #	Design Discharge (MGD)	Permitted For Fecal Control	Data Availability
Farmville WWTP	VA0083135	2.4	Yes	May 1999 – March 2003
Crewe WWTP	VA0020303	0.5	Yes	Feb 1999-Feb 2003
App. River Water Authority	VA0005819	2.7	Yes	N/A
Swift Creek WTP	VA0006254	0.006	Yes	N/A
Thomas Dale West STP	VA0020206	0.0096	Yes	May 1999-July 2002
Chesterfield Co. Grange Elementary WWTP	VA0020222	0.0066	Yes	May 1999-June 2003
DOC Pocahontas Correctional Unit 13	VA0023426	0.055	Yes	May 1999-June 2003
DOC Dinwiddie Field Unit 27 WWTP	VA0023540	0.015	Yes	May 1999-June 2003
So. Central Wastewater Authority WWTF	VA0025437	23	Yes	May 1999-June 2003
Children's Home of VA Baptists Lagoon	VA0027561	0.01	Yes	N/A
Red Hill Mobile Home Park WWTP	VA0028258	0.039	Yes	May 1999-March 2003
US Army Fort Lee - Aerial Delivery Site	VA0059161	0.5	Yes	Nov 2000-Oct 2001
Amelia Co Sanitary District	VA0086681	0.3	Yes	May 1999-June 2003
New Matoaca High School	VA0090344	0.04	Yes	Oct 2002-May 2003
Colonial Pipeline Powhatan	VA0057088	3	No	N/A
Southside VA Training Center	VA0059099	0.159	No	N/A
Fighting Creek WWTF	VA0089206	0.1	No	N/A
Tidewater Materials Inc – Dinwiddie	VA0089516	0.012	No	N/A
Taylor Road Landfill	VA0089931	0.018	No	N/A
Tyson Foods Inc - Feed Mill	VA0090131	0.0012	No	N/A
Residence	VAG402047	0.001	Yes	ND
Residence	VAG404002*	0.001	Yes	ND
PRJ Land Trust	VAG404092*	0.001	Yes	ND
Residence	VAG404107*	0.001	Yes	ND
Landing View Golf Club	VAG404129*	0.001	Yes	ND
Residence	VAG404140*	0.001	Yes	ND
Residence	VAG404161*	0.001	Yes	ND
Residence	VAG407198	0.001	Yes	ND
Residence	VAG407199	0.001	Yes	ND

* Location of permits unknown.
ND – no data, facility not required to submit monitoring data